

What is Claimed Is:

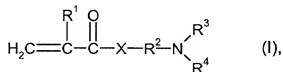
1. A cationic aqueous polymer dispersion comprising small particles comprising an emulsion polymerization product of:
- 5 (1) a monomer mixture comprising
- a) from about 20 to about 60% by weight of at least one optionally substituted styrene,
- b) from about 40 to about 80% by weight of at least one C<sub>1</sub>-C<sub>18</sub>-(meth)acrylic acid ester and
- 10 c) from 0 to about 20% by weight of at least one non-ionic ethylenically unsaturated monomer differing from a) and b), the sum of a) + b) + c) being 100% by weight, wherein the monomer mixture is polymerized in the presence of
- (2) an emulsifier comprising a solution polymerization product of
- 15 a monomer mixture comprising
- d) from about 15 to about 35% by weight of at least one (meth)acrylic acid ester and/or (meth)acrylamide which contains a tertiary amino group,
- e) from about 65 to about 85% by weight of at least one
- 20 optionally substituted styrene and
- f) from 0 to about 20% by weight of at least one non-ionic or cationic ethylenically unsaturated monomer differing from d) and e), the sum of d) + e) + f) being 100% by weight, wherein the solution polymerization is carried out in the presence of a saturated C<sub>1</sub>-C<sub>6</sub>-
- 25 carboxylic acid.
2. The cationic aqueous polymer dispersion according to Claim 1, wherein the C<sub>1</sub>-C<sub>6</sub>-carboxylic acid is a mono-carboxylic acid.
3. The cationic aqueous polymer dispersion according to Claim
- 30 1, wherein the C<sub>1</sub>-C<sub>6</sub>-carboxylic acid is acetic acid.
4. The cationic aqueous polymer dispersion according to Claim 3, wherein the acetic acid contains not more than about 20% by weight of water.

5. The cationic aqueous polymer dispersion according to Claim 1, wherein the emulsifier is present as an aqueous polymer dispersion with 2-20% solids by weight.

6. The cationic aqueous polymer dispersion according to Claim 1, wherein the monomers a) and e) are styrene.

7. The cationic aqueous polymer dispersion according to Claim 1, wherein from about 30 to about 50% by weight of styrene are used as monomer a) and from about 70 to about 80% by weight of styrene are used as monomer e).

8. The cationic aqueous polymer dispersion according to Claim 1, wherein monomers of the formula (I)



in which

R<sup>1</sup> represents H or methyl,

R<sup>2</sup> represents a linear C<sub>1</sub>-C<sub>4</sub>-alkylene radical,

R<sup>3</sup> and R<sup>4</sup> are identical or different and represent C<sub>1</sub>-C<sub>4</sub>-alkyl and

X represents O or NH,

are used as monomers of the group d).

9. The cationic aqueous polymer dispersion according to Claim 8, wherein from about 20 to about 30% by weight of the compounds of the formula (I) according to Claim 8 are used as monomer d).

10. The cationic aqueous polymer dispersion according to Claim 1, wherein at least one compound from the series methyl acrylate, methyl methacrylate, ethyl acrylate, ethyl methacrylate, propyl acrylate, propyl methacrylate, n-butyl acrylate, iso-butyl acrylate, tert-butyl acrylate, n-butyl methacrylate, iso-butyl methacrylate, tert-butyl methacrylate, hexyl acrylate, hexyl methacrylate, ethylhexyl acrylate, stearyl acrylate and stearyl methacrylate is used as monomer b).

11. A process for making a cationic aqueous polymer dispersion comprising:

(1) preparing a polymer dispersion by solution polymerization of a monomer mixture comprising:

- 5           d) from about 15 to about 35% by weight of at least one (meth)acrylic acid ester and/or (meth)acrylamide which contains a tertiary amino group,
- e) from about 65 to about 85% by weight of at least one optionally substituted styrene and
- 10          f) from 0 to about 20% by weight of at least one non-ionic or cationic ethylenically unsaturated monomer differing from d) and e),

the sum of d) + e) + f) being 100% by weight,

in at least one saturated C<sub>1</sub>-C<sub>6</sub>-carboxylic acid, subsequent addition of

15 water for the preparation of an aqueous polymer dispersion and

(2) emulsion polymerization of a monomer mixture comprising

- a) 20 to 60% by weight of at least one optionally substituted styrene,
- b) 40 to 80% by weight of at least one C<sub>1</sub>-C<sub>18</sub>-(meth)acrylic
- 20           acid ester and
- c) 0 to 20% by weight of at least one non-ionic ethylenically unsaturated monomer differing from a) and b),
- the sum of a) + b) + c) being 100% by weight, in the

presence of said aqueous polymer dispersion.

25          12. The process according to Claim 11, wherein, after the end of the emulsion polymerization, an oil-soluble free radical initiator sparingly soluble in water is added for subsequent activation.

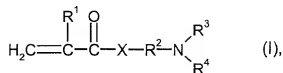
13. A process for making a cationic aqueous polymer dispersion comprising the emulsion polymerization of

30          (1) a monomer mixture comprising

- a) from about 20 to about 60% by weight of at least one optionally substituted styrene,
- b) from about 40 to about 80% by weight of at least one .

c) from 0 to about 20% by weight of at least one non-ionic ethylenically unsaturated monomer differing from a) and b), the sum of a) + b) + c) being 100% by weight, and

- 5 (2) an aqueous polymer dispersion comprising a solution  
polymerization product of monomer mixture comprising  
d) from about 15 to about 35% by weight of at least one  
(meth)acrylic acid ester and/or (meth)acrylamide which contains a tertiary  
amino group,  
10 e) from about 65 to about 85% by weight of at least one  
optionally substituted styrene and  
f) from 0 to about 20% by weight of at least one non-  
ionic or cationic ethylenically unsaturated monomer differing from d) and  
e), the sum of d) + e) + f) being 100% by weight, wherein the solution  
15 polymerization is carried out in saturated C<sub>1</sub>-C<sub>6</sub>-carboxylic acid.
14. The process of Claim 13, wherein the C<sub>1</sub>-C<sub>6</sub>-carboxylic acid  
is a monocarboxylic acid.
15. The process of Claim 13, wherein the C<sub>1</sub>-C<sub>6</sub>-carboxylic acid  
is acetic acid.
- 20 16. The process of Claim 13, wherein the acetic acid contains  
not more than about 20% by weight of water.
17. The process of Claim 13, wherein the aqueous polymer  
dispersion contains 2-20% solids by weight.
18. The process of Claim 13, wherein the monomers a) and e)  
25 are styrene.
19. The process of Claim 13, wherein from about 30 to about  
50% by weight of styrene are used as monomer a) and from about 70 to  
about 80% by weight of styrene are used as monomer e).
20. The process of Claim 13, wherein monomers of the group d)  
30 are monomers of the formula (I)



in which

R<sup>1</sup> represents H or methyl,

R<sup>2</sup> represents a linear C<sub>1</sub>-C<sub>4</sub>-alkylene radical,

5 R<sup>3</sup> and R<sup>4</sup> are identical or different and represent C<sub>1</sub>-C<sub>4</sub>-alkyl and

X represents O or NH.

20. The process of Claim 19, wherein from about 20 to about 30% by weight of the compounds of the formula (I) according to Claim 19 are used as monomer d).

10 21. The process of Claim 13, wherein monomer b) is selected from the group consisting of methyl acrylate, methyl methacrylate, ethyl acrylate, ethyl methacrylate, propyl acrylate, propyl methacrylate, n-butyl acrylate, iso-butyl acrylate, tert-butyl acrylate, n-butyl methacrylate, iso-butyl methacrylate, tert-butyl methacrylate, hexyl acrylate, hexyl  
15 methacrylate, ethylhexyl acrylate, stearyl acrylate, stearyl methacrylate, and mixtures thereof.